Amendments the Claims

1. (Currently Amended) ~~A microelectrical mechanical optical display system, comprising:~~ The display engine of claim 16, further comprising

an illumination source ~~that provides~~ constructed and arranged to provide illumination light[[;]] and

a collimating lens ~~that receives and collimates~~ constructed and arranged to receive and collimate the illumination light~~;~~

~~a microlens array having an array of plural lenslets and receiving the illumination light from the collimating lens;~~

~~an aperture plate through which plural pixel apertures extend, the plural pixel apertures being aligned with and receiving the illumination light from the plural lenslets of the microlens array;~~

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~~a microelectrical mechanical reflector array positioned opposite the aperture plate from the microlens array, the microelectrical mechanical reflector array including plural microelectrical mechanical actuators that support reflectors in alignment with the plural pixel apertures to receive and reflect the illumination light, the plural microelectrical mechanical actuators orienting the reflectors selectively to direct the illumination light back through the pixel apertures or against the aperture plate; and~~

~~a display screen that receives the illumination light passing the microelectrical mechanical optical modulator~~.

2. (Currently Amended) The display ~~system~~ engine of claim 1 further comprising a selective reflector positioned to receive the illumination light from the collimating lens and to direct the illumination light to the microlens array.

3. (Currently Amended) The display ~~system of claim~~ engine of claim 2 in which ~~illumination light directed back through the pixel apertures by the reflectors is transmitted through~~ the selective reflector is constructed and arranged to transmit the illumination light from the pixel apertures toward the display screen.

4. (Currently Amended) The display ~~system~~ engine of claim 3 in which the selective reflector includes a beamsplitter.

5. (Currently Amended) The display ~~system~~ engine of claim [[1]] 16 in which the microelectrical mechanical reflector array is formed on a planar substrate and the plural microelectrical mechanical actuators support the reflectors on actuator arms that in one state are co-planar with the substrate and the reflectors.

6 -10. (Canceled)

11. (Currently Amended) The display ~~system~~ engine of claim 1 in which the illumination source includes only one light source.

12. (Currently Amended) The display ~~system~~ engine of claim [[1]] 28 in which the display screen is a transmissive display screen.

13. (Currently Amended) The display system of claim 1 in which the illumination source is monochromatic.

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14. (Currently Amended) The display ~~system~~ engine of claim 1 in which the illumination source is polychromatic.

15. (Currently Amended) The display ~~system~~ engine of claim 14 in which the illumination source ~~provides~~ is constructed and arranged to provide different chromatic segments of the illumination light over different successive time periods.

16. (Currently Amended) A microelectrical mechanical optical display engine, comprising:

a microlens array having an array of plural lenslets for receiving and directing illumination light;

an aperture plate through which plural pixel apertures extend, the plural pixel apertures being aligned with and to receive illumination light from the plural lenslets of the microlens array; and

a microelectrical mechanical reflector array positioned opposite the aperture plate from the microlens array, the microelectrical mechanical reflector array including plural microelectrical mechanical actuators that support reflectors in alignment with the plural pixel apertures to receive and reflect the illumination light, the plural microelectrical mechanical actuators ~~orienting~~ being constructed and arranged to orient the reflectors selectively to direct the illumination light back through the pixel apertures or against the aperture plate.

17. (Original) The display engine of claim 16 in which the microelectrical mechanical actuators are electrostatic microelectrical mechanical actuators.

18. (Original) The display engine of claim 17 in which the microelectrical mechanical actuators have first and second orientation states, only one of which requires electrostatic activation.

19. (Original) The display engine of claim 17 in which the plural microelectrical mechanical actuators support the reflectors on actuator arms that are formed as bimorphs having a characteristic residual stress.

20. (Currently Amended) The display engine of claim 19 in which the microelectrical mechanical actuators ~~have~~ include an electrostatic activation electrode that ~~operates~~ applies a force against the characteristic residual stress of the actuator arms.

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21. (Currently Amended) The display engine of claim [[16]] 20 in which the microelectrical mechanical actuators are constructed and arranged to orient the reflectors selectively according to drive signals provided by a display ~~drivers~~ driver, the ~~system~~ engine further comprising an orientation storage system separate from the ~~display drivers~~ electrostatic activation electrode to selectively hold the microelectrical mechanical actuators in at least one orientation.

22-27. (Canceled)

28. (New) The display engine of claim 16, further comprising a display screen that receives the illumination light reflected from the microelectrical mechanical reflector array.

29. (New) A microelectrical mechanical device comprising:

(a) a substrate;

(b) an arm having a first end anchored to the substrate and a free end extending over the substrate, the arm having a bottom surface facing the substrate and a top surface opposite the bottom surface;

(c) a reflector extending over the top surface of the free end of the arm;

(d) an electrostatic activation electrode supported by the substrate and facing the bottom surface of the arm, the electrode, when activated by a first voltage, providing an electrical force sufficient to move the free end of the arm; and

(e) an electrostatic lock, supported by the substrate and facing the bottom surface of the arm, the lock, when activated by a second voltage, providing an electrical force sufficient to hold the free end of the arm in position.

30. (New) The microelectrical device of claim 29, wherein the arm includes at least one flex score extending across a least a portion of a width of the arm.

31. (New) The microelectrical device of claim 30, wherein the free end of the arm proximate to the reflector is free of the at least one flex score.

32. (New) The microelectrical device of claim 29, further comprising at least one stand-off dimple, the dimple spacing the free end of the arm away from the substrate.

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33. (New) The microelectrical device of claim 29, wherein the lock is supported by the substrate beneath the free end of the arm.

34. (New) The microelectrical device of claim 29, wherein the arm is formed of a bimorph material, the material having a relaxed state.

35. (New) The microelectrical device of claim 34, wherein the arm flexes away from the substrate in the relaxed state.

36. (New) The microelectrical device of claim 35, wherein the arm lies substantially flat against the substrate when the electrode is activated and wherein the arm lies substantially flat against the substrate when the lock is activated and the electrode is deactivated.

37. (New) A method of operating an array of microelectrical mechanical reflectors, the method comprising:

(a) providing a plurality of microelectrical mechanical reflectors in an array having a plurality of rows and columns, each micromechanical reflector having a substrate, a reflector element supported by the substrate, and an electrostatic activation electrode supported by the substrate proximate the reflector element;

(b) activating a selected reflector at a selected row and at a selected column, wherein activating the selected reflector includes applying a first row voltage to the selected row of reflectors and applying a first column voltage to the selected column of reflectors, the first row voltage being applied to the reflector element of each reflector

in the selected row, and the first column voltage being applied to the activation electrode of each reflector in the selected column.

38. (New) The method of claim 37, wherein an absolute value of a difference between the first row voltage and the first column voltage is greater than an activation voltage of the reflector element.

39. (New) The method of claim 38, wherein an absolute value of each of the first row voltage and the first column voltage is less than the activation voltage.

40. (New) The method of claim 38, wherein each micromechanical reflector includes a memory electrode, and the method further comprises applying a second row voltage to the selected row of reflectors and applying a second column voltage to the selected column of reflectors, the second row voltage being applied to the reflector element of each reflector in the selected row, and the second column voltage being applied to the memory electrode of each reflector in the selected column, wherein an absolute value of a difference between the second row voltage and the second column voltage is sufficient to maintain activation of the reflector element.

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41. (New) The method of claim 40, wherein the absolute value of the difference between the second row voltage and the second column voltage is less than the activation voltage.

42. (New) The method of claim 37, further comprising releasing the selected reflector device from the activated state, wherein releasing the selected reflector device includes applying a third row voltage to the selected row and applying a third column voltage to the selected column.

43. (New) The method of claim 42, wherein each micromechanical reflector includes a memory electrode, and the method further comprises applying a second row voltage to the selected row of reflectors and applying a second column voltage to the selected column of reflectors, the second row voltage being applied to the reflector element of each reflector in the selected row, and the second column voltage being applied to the memory electrode of each reflector in the selected column, wherein an absolute value of a difference between the second row voltage and the second column voltage is sufficient to maintain the release of the reflector element.

44. (New) The method of claim 43, wherein the absolute value of the difference between the second row voltage and the second column voltage is less than an activation voltage of the reflector element.

45. (New) A microelectrical mechanical device comprising:

(a) a substrate;

(b) an arm having a first end anchored to the substrate and a free end extending over the substrate, the arm having a bottom surface facing the substrate and a top surface opposite the bottom surface;

(c) a reflector extending over the top surface of the free end of the arm;

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(d) at least one electrostatic electrode supported by the substrate and facing the bottom surface of the arm, the at least one electrode, when activated by a first voltage, provides an electrical force sufficient to move the free end of the arm, and the at least one electrode, when activated by a second voltage, provides an electrical force sufficient to maintain a position of the free end of the arm, the first voltage being different from the second voltage.

46. (New) The device of claim 45, wherein the at least one electrostatic electrode includes an electrostatic actuator and an electrostatic lock.

47. (New) The microelectrical device of claim 45, wherein the arm is formed of a bimorph material, the material having a relaxed state.